

Work Order ID 68807

Thursday, April 21, 2011 8:52:20 AM



Page 1

Item ID: D206-667-203

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft

Start Date: 4/21/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/26/2011 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: *[Signature]* Date: *4-04-21*

Tooling:

Date:

QC: Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D206-667-243	Rev C

100 0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

Sublet

110 0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-243 using CNC bender program 206L-AF

JBU
SAD



11-06-06

120 0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

Sublet

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

0.00



Crosstubes

Crosstubes

Memo

0.00

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 and drill table DT8577. Locate hole #6 for towers as per QSI 10. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243

6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.

8-C'sink holes as per Dwg D206-667-243.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243 Inside of Cuff(Donot engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per

TW
SAD
11-06-06

TW
SAD
11-06-07

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	Outsource process - NDT per QSI038 4.1	0.00							
	Outsource2	0.00							
Outsource process - NDT	Memo Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>191254</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								<u>CZ 11/06/08</u> (C)
180	Packaging	0.00							
	Packaging	0.00							
Packaging	Memo Ensure copy of NDT results attached to work order.								<u>Pull 4/8</u> (C)
190	QC5- Inspect part completeness to step on W/O	0.00							
	QC	0.00							
Quality Control	Memo Ensure results are as per Dwg D206-667-243								<u>11 06 21</u> (C)

P10 →

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-667-203 PAR #: N/A Fault Category: V-tube NCR: Yes No DQA: PA Date: 11.07.06
 Resolution: Re-work Disposition: Re-work QA: N/C Closed: ck Date: 11/07/06

NCR: 68807		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/6/13	#130	Found on one cuff that when drilling the holes for the nut plate the operator touches the other inside of the cuff with the drill	CP 11.06.13 DS042	→ Drill out the Dimple As per DSE DWG RIGHT THRU	TW 11-06-15	Subs	CP 11.06.13 DS042	S 11/6/13
		Bit and create a small Dimple. R.L. Process lost TRAINING	CP 11.06.13	(DSE - OKAY) 9396			CP 11.06.13	S 11/6/13

NOTE: Date & initial all entries

Work Order ID 68807

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Start Date: 4/21/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 4/26/2011 Req'd Qty: 1.00

Customer:

Reference:

Run Start

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

0.00



SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 10:00

Finish Time: 11:00

PAINT:

Start Time: 3:00

Finish Time: 4:30

N 11 06 21 (1)

210

0.00



QC

QC14- Inspect Spray Paint

Memo

0.00

Quality Control

Wrap in plastic bag to protect from scratches

BT 11 06 22

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Cust Item ID:

Required Date: 4/26/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220

0.00



Crosstubes

11

11

06

23 (1)

Crosstubes

Memo

0.00

Crosstubes

1-Install nut plates as per Dwg D206-667-243.

230

0.00



Skidtubes

11

11

06

23 (1)

Crosstubes

Memo

0.00

Crosstubes

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up.

~~A/R Magnobond 6398~~ 117510 exp: 08/2011
Pro Seal

2-Install supports and clamps as per Dwg D206-667-243. Torque clamps to 80-100 in lb

11.06.27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Start Date: 4/21/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/26/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

S 4/26/28

70

Quality Control

250

Pick Kit

0.00



Packaging

Memo

0.00

71

Packaging

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

S 4/26/29

71

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Revision ID:

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Item Name: Crosstube Aft

Start Date: 4/21/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/26/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

270

0.00



Packaging

0.00

Packaging

Memo

Identify and pack for shipping as per PPP D206-667-203

Location: _____

PPP Rev: _____

P 4/6/29 C

280

0.00



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

Quality Control

11/6/29 J

POSITIVE RECALL

EFFECTIVE 11.06.13 AUTH CP

RELEASED CP DATE 11.06.29

★ NEED DSI FROM ENG.

ADDED DSI 9346 Rev.M

MF
11-06-29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Picklist Print

Thursday, April 21, 2011 8:52:27 AM

Page 1

Work Order ID: 68807

Parent Item: D206-667-203

Parent Item Name: Crosstube Aft

Start Date: 4/21/2011

Required Date: 4/26/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:F 05.09.01 Add holes for compatibility with Bell Skidtubes KJ/JEM
 IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec
 IPP Rev:H 08-07-18 remove thread masking in step 12 DD verified by:EC
 IPP Rev:I 08-12-15 add magnobond DD verified by:EC
 IPP Rev J 09.01.06 ECN 08-562 EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D206-667-203TRN		Manufactured	No			220	Each	2.0000	1	1			
Crosstube Turning Detail													

Location	Loc Qty	Loc Code
----------	---------	----------

LG	1	
67388	1	
LG003	1	
67390	1	

D2873-043		Manufactured	No			220	Each	16.0000	2	2			
Nut Plate Assembly													

Location	Loc Qty	Loc Code
----------	---------	----------

LG052	16	
66898	16	

D2873-045		Manufactured	No			220	Each	31.0000	2	2			
Nut Plate Assembly													

Location	Loc Qty	Loc Code
----------	---------	----------

LG052	31	
65992	11	
67741	20	

R# 68801

R# 68800

SAD 11-06-04

11 06 23

11 06 23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Picklist Print

Thursday, April 21, 2011 8:52:27 AM

Work Order ID: 68807

Parent Item: D206-667-203

Parent Item Name: Crosstube Aft

Start Date: 4/21/2011

Required Date: 4/26/2011

Start Qty: 1.00

Required Qty: 1.00

D2892-1 Manufactured No

230 Each

22.0000

2

2



Support



mt 11.06.23

13# 70735

Location

Loc Qty

Loc Code

LG052

22

42785

14

62592

2

65717

6

D3595-063-450 Manufactured No

230 Each

78.0000

4

4



RUBBER CUSHION



mt 11.06.23

13# 68893

Location

Loc Qty

Loc Code

LG

23

67353

23

LG055

55

68157

55

MS20601-AD4W10 Purchased No

230 Each

156.0000

14

14



RIVET



mt 11.06.23

Location

Loc Qty

Loc Code

LG051

156

116186

3

116767

54

117193

99

MS21920-22 Purchased No

230 Each

69.0000

4

4



Clamp(per MIL-DTL-8783C)



mt 11.06.23

Location

Loc Qty

Loc Code

LG050

69

116207

19

117279

50

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

Thursday, April 21, 2011 8:52:28 AM

Work Order ID: 68807

Parent Item: D206-667-203


Parent Item Name: Crosstube Aft

Start Date: 4/21/2011


Required Date: 4/26/2011

Start Qty: 1.00


Required Qty: 1.00

8 AN5-10A Purchased No 250 Each 296.0000 10 10

 Bolt


Location	Loc Qty	Loc Code
ST337	296	
116924	46	
117010	50	
117313	200	

8 AN5-32A Purchased No 250 Each 137.0000 4 4

 Bolt

Location	Loc Qty	Loc Code
ST340	137	
115108	27	
115589	60	
117161	50	

8 AN5-34A Purchased No 250 Each 84.0000 4 4

 Bolt

Location	Loc Qty	Loc Code
ST340	84	
115835	4	
116003	20	
116704	20	
117010	20	
117366	20	

8 AN960JD516 NAS1149D0563J Purchased No 250 Each 0.0000 18 18

 Washer

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Parent Item: D206-667-203



Parent Item Name: Crosstube Aft

Start Date: 4/21/2011

Required Date: 4/26/2011

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

250

Each

1,218.000

4

4



Nut

6/4/28 ①

Location

Loc Qty

Loc Code

ST300

1218

116105

458

116548

260

117441

500

7/16/05

Thursday, April 21, 2011 8:52:28 AM

Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

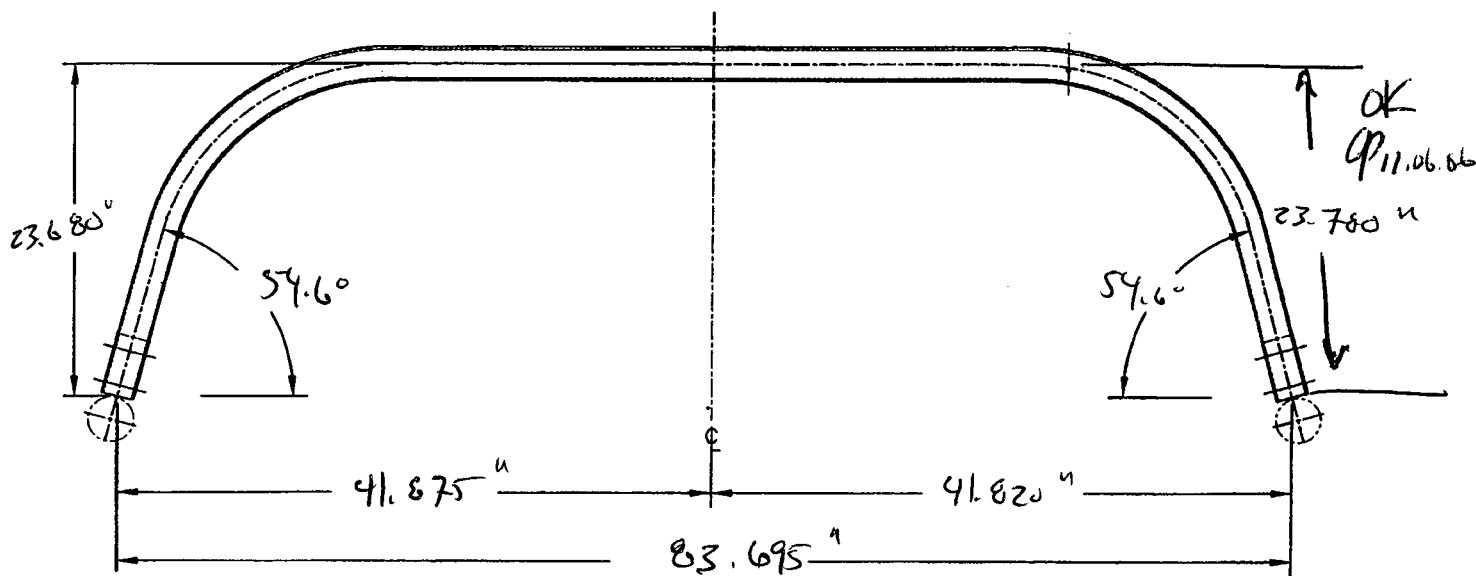
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order: 68807
Description: Crosstube High Aft (206L)	Part Number: D206-667-203
Inspection Dwg: D206-667-243 Rev: C	Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.1



Comments
Tube is bent high. Acceptable 11.06.06

QC15 Inspection	S
Date	11/06/06

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.17	Dwg Rev updated	KJ	
C	09.12.14	Dimensions update per Dwg Rev C	KJ	

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Item	Qty -243	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W 10	RIVET (OR NAS9302B 4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHO COPY
REL. TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 68507

2/11-09-21

RELEASED
08/11/09

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHTAA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>92</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>RF</i>	DRAWING NO.	REV. C
CHECKED	<i>92</i>	D206-667-243	SHEET 1 OF 4
MFG. APPR.	<i>92</i>	TITLE	SCALE
DE APPR.	<i>92</i>	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

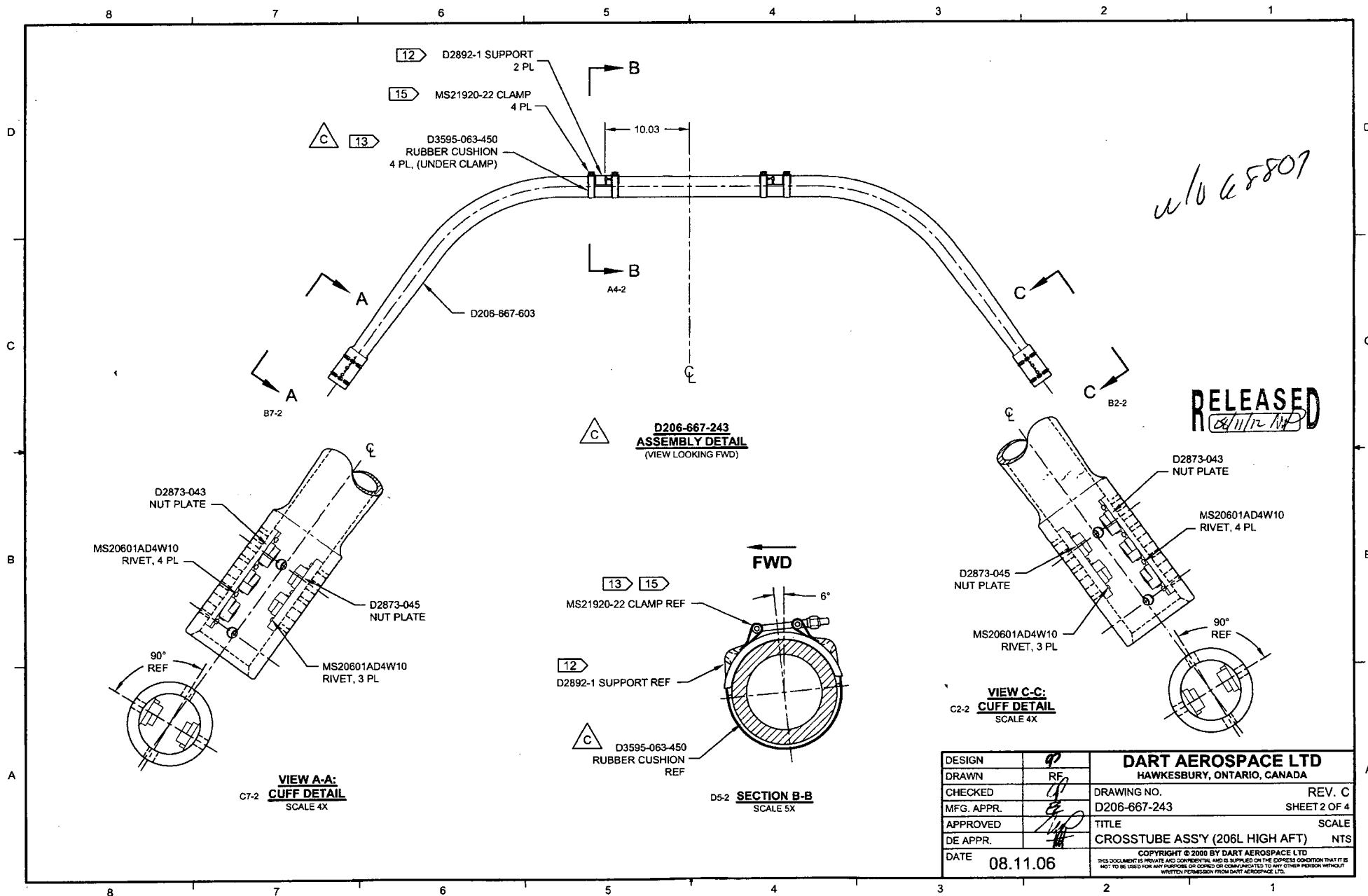
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



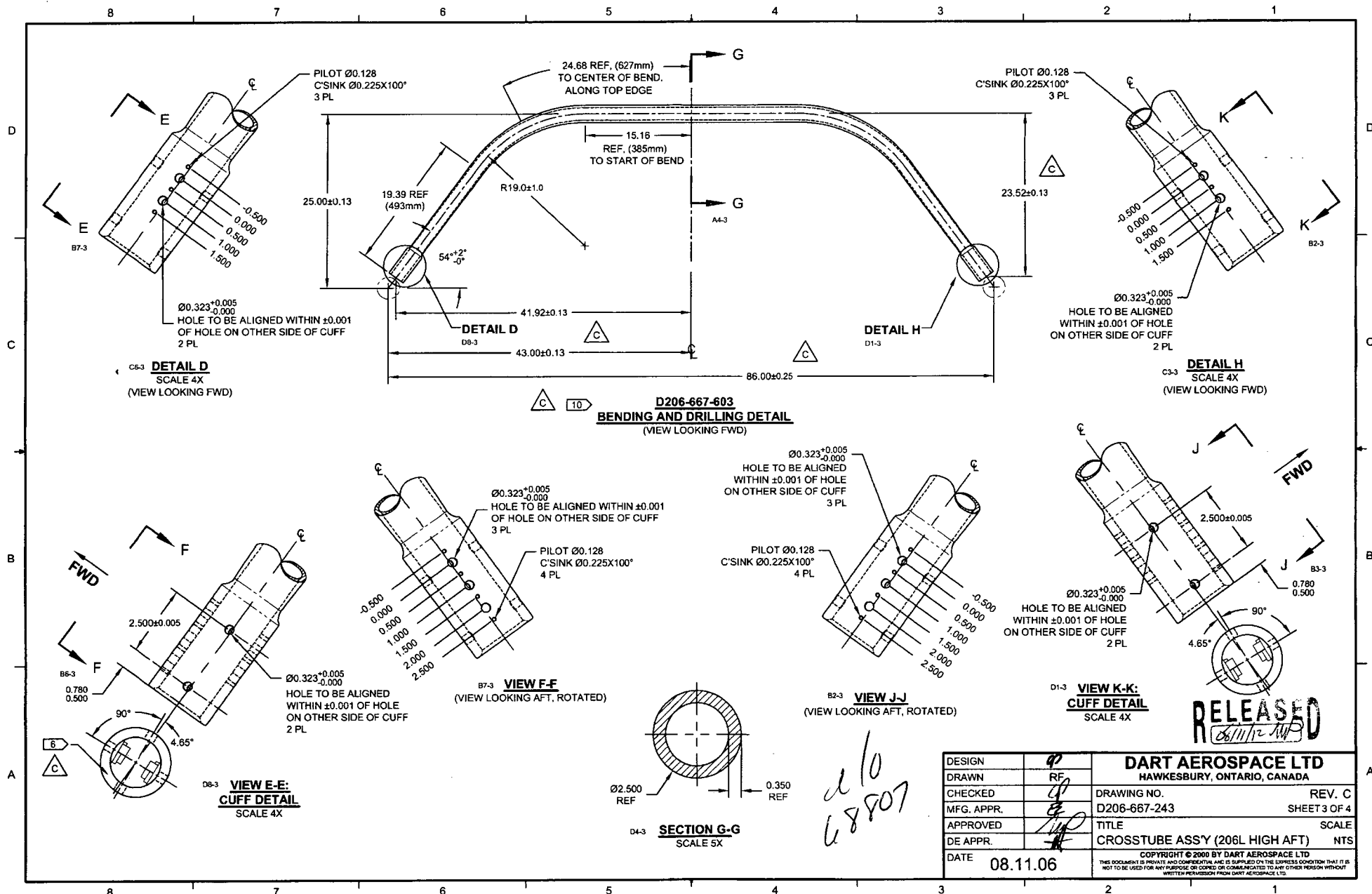
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	42	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	42	DRAWING NO.	REV. C
MFG. APPR.	42	D206-667-243	SHEET 3 OF 4
APPROVED	42	TITLE	SCALE
DE APPR.	42	CROSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

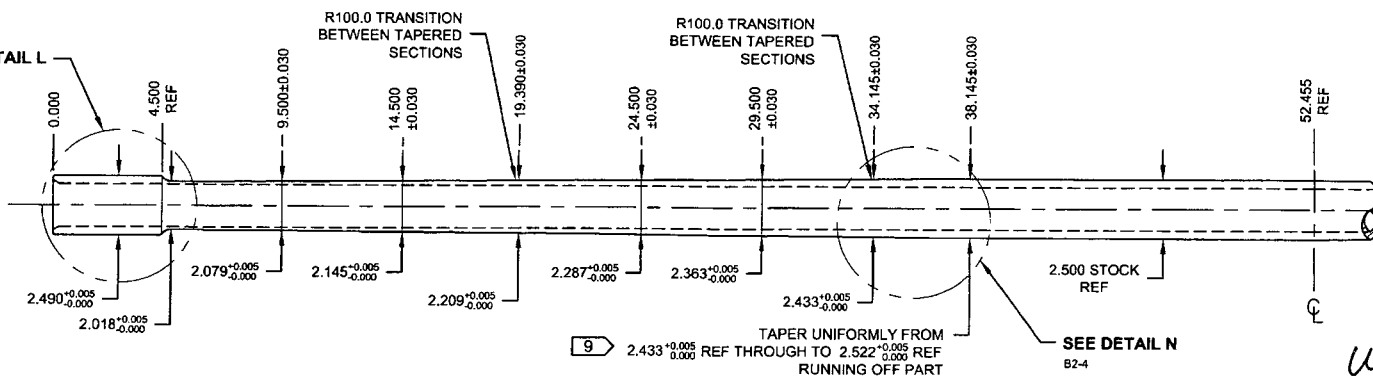
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

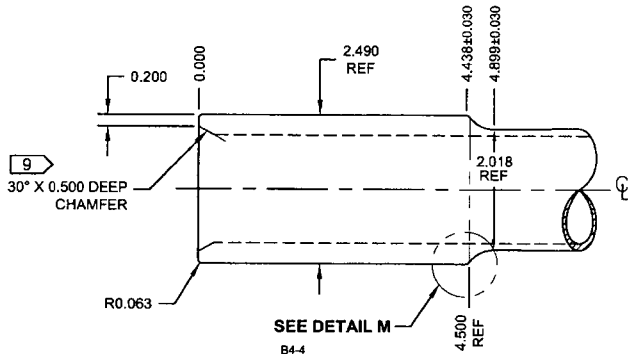
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

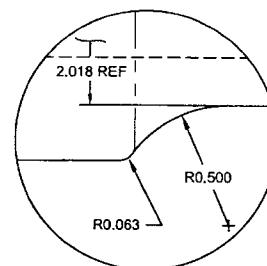
SEE DETAIL L
B7-4



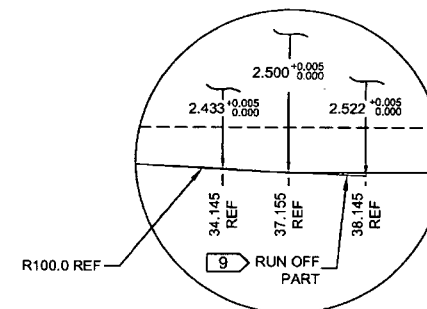
TURNING DETAIL



DETAIL L: CROSSTUBE CUFF
NOT TO SCALE



DETAIL M: CUFF TRANSITION
NOT TO SCALE



DETAIL N: TAPER RUN-OFF
NOT TO SCALE

RELEASED
08/11/06

DESIGN	9	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-243	SHEET 4 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

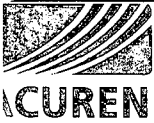
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 05613

CLIENT

ATTENTION

ADDRESS

PROJECT

ITEM(S) EXAMINED

DATE

ACUREN JOB No.

PO/NO No.

WORK LOCATION

ACCEPTANCE STD.

PAGE

OF

TIME

AM

PM

JOB DESCRIPTION

PROCEDURE No. LT-003 REV/DATE 2003

TECHNIQUE No. LT-003 REV/DATE 2003

ART No.

MATERIAL

THICKNESS

SCOPE

TEST DETAILS

METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
AMILY BRAND	MACNAFLUX		BLACK LIGHT S/N	13798	
ENETRANT	2L-67	MINIMUM DWELL TIME	10	MIN.	LIGHTING EQUIP.
ENETRANT REMOVER	H ₂ O	MINIMUM DRY TIME	>10	MIN.	OTHER
DEVELOPER	SKD-52	MINIMUM DWELL TIME	10	MIN.	LIGHT METER S/N
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY	CAL DUE DATE 12/15/01	

TEST SURFACE

SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F	<input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F	

RESULTS- () METRIC () IMPERIAL

1 CRACKS W.O. ID 69762 ✓
2 " W.O. ID 69763 ✓
3 " W.O. ID 69356 ✓
4 " W.O. ID 69358 ✓
5 " W.O. ID 69357 ✓
6 " W.O. ID 69359 ✓
7 " W.O. ID 68806 ✓
8 " W.O. ID 68807 ✓

ITEM ID D 212-664-101 FWD
" ID D 212-664-101 FWD
" ID D 212-664-203 AFT
" ID D 212-664-203 AFT
" ID D 412-664-203 AFT
" ID D 412-664-203 AFT
" ID D 206-667-203 AFT
" ID D 206-667-203 AFT

NO RELEVANT INDICATION WAS DETECTED
AS PER APPLICABLE STANDARD

11.06.21

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the use or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE

TECHNICIAN (SIGNATURE):

NAME (PRINT):

PRINT

SIGNATURE

1ST TECHNICIAN2ND TECHNICIAN

CGSB LEVEL

SNT LEVEL

CGSB LEVEL

SNT LEVEL

CGSB REG. No.

CGSB REG. No.

DTR # E-44675

REPORT

REVIEWED BY:

NAME

INITIALS

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

PT Sept 2005

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
		X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
			X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
				X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
					X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
						X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2		1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3			1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4				1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5					1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10	*2	*2	*2		*2		D2891-1	SUPPORT
11				*2			D2892-1	SUPPORT
12						*1	D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14				*4			D3595-063-450	RUBBER CUSHION
15						*2	D3595-075-430	RUBBER CUSHION
16	*4	*4	*4		*4		MS21920-20	CLAMP
17				*4		*4	MS21920-22	CLAMP
18						*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4		4		AN5-32A	BOLT
20				4		4	AN5-34A	BOLT
21	4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	8	8	8	8	NAS1149C0563J	WASHER (OR AN960JD516)
23						*2	D3190-1	CHAFING SHIELD
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41	*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42		2					D2872-043	NUT PLATE
43		2					D2872-045	NUT PLATE
44	10		10				AN5-7A	BOLT
45		10		10	10	10	AN5-10A	BOLT
46	4	10	4		4		AN5-30A	BOLT
47				4		4	AN5-32A	BOLT
48			12				AN970-4	WASHER (OPTIONAL)
49		6					MS21042L5	NUT (OR MS21042-5)
50	10	12	10	10	10	10	NAS1149C0563J	WASHER (OR AN960JD516)
60		1					D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245
ASSEMBLIES ABOVE

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Revision: D

Date: 11.05.01